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ABSTRACT

A foreign language teacher has always been influenced by his conception of what language is; e.g., if he thinks language is mostly words, he concentrates on teaching words and measures success by the size of his pupils' vocabulary. The study of pronunciation gave rise to several developments within linguistics, which has up to the present time kept sounds, words, sentences, and meaning relatively separate for purposes of analysis. This has led to a kind of language teaching that is fragmented, centering attention on the word as a crucial unifying link in the development of linguistic skills. We are now, however, in for a period of linguistic theory in which we will have to concentrate on how words are selected and recognized. This should lead to a renaissance in the teaching of vocabulary. The pronunciation teacher should ask, "What does the student have to know about pronunciation in order to recognize any word that he might ever hear?" He has to be able to hear all of the necessary distinctive features of the language and know how words are made in terms of their pronunciation structure. The teacher should teach distinctive features rather than minimal pairs. The student recognizes a word by matching it up with what he hears. If he has been taught the sound system at the very beginning of his language learning, he will avoid misclassifying new words. (AMM)

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Linguistics and the Teaching of Pronunciation

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THE TEACHER OF LANGUAGE HAS ALWAYS been influenced by his conception of what language is. If he thinks language is mostly *words*, he concentrates on teaching words, and he measures his success by the size of the vocabulary his pupils have mastered. If he thinks language is essentially *usage*, he devotes most of his time to defining for his students a kind of usage that is acceptable in the community in which they must speak or write, and he measures his success in terms of the acceptability of the English his students use within their community. If he thinks language is essentially *structure*, he concentrates on teaching structure, and he measures his success in terms of the degree to which his pupils can use linguistic structures efficiently without making mistakes.

These three views of language are not the only ones possible, but each of them has had a profound impact on the teaching of English in the Philippines.[1] A concentration on *vocabulary* is the essential feature of traditional language teaching in the Philippines. For a long time teachers and their supervisors have worried about how many words their pupils know, and many curricula consist of little more than word lists. A concentration on usage is the essential characteristic of many of the English textbooks that have been imported—simply because these books were originally intended for native speakers of English. (In countries where English is the first language of the majority of the pupils in school, a usage-based approach is all the situation demands. So first-language textbooks concentrate on this approach and attempt to develop in the students a command of educated literary English.) A concentration on *structure* is the essential feature of the second-language approach, which has had and is having a profound effect on Philippine language teaching. Materials developed within this approach emphasize the development of appropriate habits of sentence construction and pronunciation.

Historical developments

Each of the approaches referred to above conforms to a particular stage in the development of linguistic theory. If we trace our conceptions of language back in time, we find that the earliest observations had to do with words and their meanings. By the time of Aristotle, linguists and philosophers of ancient Greece had already brought to light many important problems in word-meaning relationships, and many of Aristotle's logical ideas can best be understood as extensions and reflections of Greek vocabulary. Much of the linguistics of the Middle Ages and of early modern times dealt with the same problems of relationship between words and meaning that the Greeks had struggled with.

In the Greek and Roman worlds, and again in more recent times, a kind of linguistics developed that concentrated on levels of usage. For English this development began about the year 1780, when, in the newly industrialized society, many Englishmen of the lower classes gained wealth and influence and hoped thereby to gain acceptance among the upper social classes. They found, however, that their speech branded them as members of the lower class, and they began to seek ways of eliminating this stigma.

The problem was, in part, one of vocabulary. But to a much greater extent it was a question of pronunciation. While most Englishmen used largely the same grammar and vocabulary, they pronounced their language in different ways depending on region and social class. A careful study of pronunciation—of how sounds are made—soon enabled speech teachers to drill their ambitious lower-

[1] EDITOR'S NOTE: While the author draws most of his illustrations from his many years' experience with the teaching of English in the Philippines, readers will recognize most of these examples as having widespread or universal implications.

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class clients with exercises designed to produce upper-class pronunciation. The kinds of problems and procedures that characterized these efforts are reflected in Shaw's *Pygmalion*—and in its musical version, *My Fair Lady*.

In the United States, on the other hand, usage grammar tended to concentrate for the most part on a few substandard syntactic problems. The actual variation in pronunciation in any one region was too small to be a significant index of correct speech, and there was no accepted prestige dialect as there was in England.

The study of pronunciation gave rise to several developments within linguistics. For one thing, linguists became interested in other dialects besides the standard one, and they began to do research into local variations in pronunciation. Also, they began to study precisely how sounds are made, and thus developed a science of articulatory phonetics. Linguists also became interested in languages other than their own, and they began to study the characteristics of non-European pronunciations. By around 1870, linguistic science had advanced to the point where some sort of standard alphabet was needed to record the variations that had been found. An International Congress of Linguists met in Paris and worked out the now-famous International Phonetic Alphabet, or IPA. With this tool, linguists could describe languages with unprecedented accuracy and completeness, and the success of the IPA gave rise to much new work in linguistics.

The IPA had obvious implications for teaching people to speak correctly. The IPA symbols were related very exactly to the things a speaker does with his speech organs. Therefore, all that was necessary—in theory—was for the speaker to associate the correct sound with each IPA symbol. Thus the language teacher became to some extent a teacher of sound, and he began to rely on transcriptions as a means of pinning down for leisurely study what the student should say.

The phonemic principle

As the IPA was used in more and more places for more and more purposes, it became more and more complex. Linguists began to realize that something was required to simplify this elaborately complex system. At first they were contented with distinguishing between "narrow phonetics"—in which every detail was noted down—and "broad phonetics"—in which only details that were somehow more important than the others were noted down. But it was not clear why some details were important and others unimportant. As linguists investigated this matter, they began to develop a theory of phonemics.

Phonemics asserts that sounds are important if they can change meaning. We know, for example, that /s/ and /š/ are different sounds in English because *sell* does not mean the same thing as *shell, class* does not mean the same thing as *clash,* etc. By 1930 linguists had developed a number of tests for deciding whether differences in pronunciation were important or not important in this sense, and many of these linguistic tests have been transmitted to second-language teaching with only a slight change of emphasis. Our minimal-pair drills are simply designed to convince students that some differences in pronunciation really make a difference in meaning—and to give students practice in hearing and saying these differences.

It should be emphasized that the phonemic principle insists that the sounds of language are organized in terms of contrast. In teaching phonemes, then, we must teach contrasts and not simply sounds. However well we teach a student to pronounce /f/ by telling him what to do and giving him articulatory practice, this will not teach him to distinguish between /f/ and /p/ in English.[2] No matter how correctly the student may pronounce *face,* if he does not recognize immediately that *pace* means something entirely different, he has not learned an essential fact about the two sounds involved. The phonemic principle thus gives the language teacher another dimension to work with: He must do more than teach the sound; he must teach his students that one sound is different from the other sounds

Linguists found other problems in the IPA. It seemed to work well enough for "segmental" sounds, but there were changes in loudness and length and there were pitch pauses between sounds—all of which were difficult to record. Linguists attempted to apply the phonemic principle to these features also, and they eventually arrived at a description of English stress in terms of stress phonemes and of English intonation in terms of pitch and juncture. Most linguists were not completely happy with this solution because the phonemic evidence was not very clear at certain points, and the system that was developed seemed much more complicated than the patterns that it described suggested it should be.

But for the language teacher the system for noting stress and intonation was a godsend, for it enabled him at least to write down in some way what his students should be saying. The fact that the phonemic principle was not well established for stress and intonation is reflected, however, in the fact that we often teach stress and intonation as sounds and not as contrasts. Our typical procedure is to give the student a group of sentences that are stressed in the same way and that have the same intonation pattern, and ask him to say these sentences over and over again until the stress and intonation become fixed. Procedurally, this is similar to the language teacher who teaches students to say /f/ by having them practice it over and over again as a sound, rather than using minimal pairs like *face* and *pace* to prove that /f/ is different from /p/ and that the difference is necessary.

Recent developments

Since 1957, linguistics has been at a kind of crossroads. Many sorts of evidence have shown that language is based on a set of very abstract rules. In grammar, these rules describe sentence formation in terms of "tree structures," which undergo wholesale changes called transformations before they can actually become sentences. In the study

[2] This distinction between /f/ and /p/ is a particularly troublesome one for most Filipinos.

of meaning, it has become clear that word meanings are not simple but are composed of simpler meanings that have been combined in some way to make up the meaning of the word. In phonology, it has been recognized that sounds themselves are not simple but are made up of combinations of features. Each of these different levels of language is controlled by abstract rules, which tell how the pieces may combine with each other and which somehow govern the speech processes. These different sets of rules are unified at the level of the word. It is the word which joins sound and meaning, and it is the word which completes the abstract grammatical structure by filling it with substance.

As this view of linguistic structure becomes more fully developed and better established, we can expect it to affect the teaching of pronunciation in two ways. First, the fact that sounds are now viewed as sets of features will certainly lead teachers to attempt to teach distinctive features rather than simply sounds. This is easier to illustrate than to explain, so I will show by an illustration how a "feature" approach to pronunciation teaching will differ from a "minimal-pairs" approach or a "sounds" approach. Let us return to the /p/ and /f/ distinction once more.

A /p/ is different from an /f/ in many ways, but only one of these ways is significant in an analysis of English distinctive features: The /p/ is a stopped sound while the /f/ is a fricative sound. The Philippine languages do not distinguish between stops and fricatives at any point. That is, not only is there no contrast between /p/ and /f/ in the Philippine languages, but there is also no contrast between /b/ and /v/, between /t/ and /θ/, or between /d/ and /ð/. Presumably, the teacher could create these four contrasts in his students' speech if he could build up in them a control of just *one* feature. It no longer makes sense to treat these sounds in terms of four unrelated minimal pairs. Rather, they must be dealt with as a single group in a single lesson for the purpose of developing control of the single differentiating feature. Where we now say, "Hold up one finger if I say /p/ and hold up two fingers if I say /f/," we may soon begin saying, "Hold up one finger if I say a stop and hold up two fingers if I say a fricative." Then we may go on to drill this contrast with many minimal pairs, and with many words that are not minimal pairs as well.

To put it another way: Just as the step from sound to phoneme forced us to go from isolated words to minimal pairs, so the step from phoneme to distinctive feature will force us to go from minimal pairs to entire sets of sounds. We will no longer be teaching sounds or contrasts, but rather a distinctive-feature opposition.

While this first consequence is a fairly obvious one, the second effect of this new phonology is not at all obvious. We have always known that we could not teach sounds apart from words, or words apart from sentences, or sentences apart from meaning. But up to the present time linguistic theory has kept sounds and words and sentences and meanings relatively separate for purposes of analysis. We have talked about the sound system of the language as if we could abstract it from the rest of the language. We have talked about sentence structures as if they could be mastered as a thing in themselves. This sort of abstraction has led to a kind of language teaching that is fragmented in many important respects. We have pronunciation drills, grammar drills, vocabulary work, and free language activities neatly compartmentalized and all too often insulated from each other in our present curriculum.

The new approach in linguistics makes it painfully obvious that this fragmentation is a mistake. Furthermore, it centers our attention on the word as a crucial unifying link in the development of linguistic skills. When we hear language, we must recognize its words before we can do anything else in the processes of understanding it. When we speak language, we must choose words before any of the other processes become appropriate. To put it another way, we must recognize words before we can interpret linguistic sounds, and we must select words before we can produce linguistic sounds. I think we are in for a period of linguistic theory in which we will have to concentrate a great deal on how words are selected and recognized. In language teaching, this should lead to a renaissance in the teaching of vocabulary.

Two crucial questions

But—and this is very important—we are not going back to an emphasis on sheer quantity. Nor are we going to emphasize the development of certain words just because they are frequently used. The renaissance in vocabulary teaching is going to develop around two precise technical

questions: (1) *What does a student need to know if he is to choose an appropriate word?* (2) *What does a student need to know if he is to recognize the words he hears?* Put into one sentence, the answers to these questions will be: *He needs to know and be able to use the abstract set of semantic and phonological rules which made it possible for speakers of the language to create those words in the first place.*

Think about these two questions and their answers for a moment. The questions imply that any speaker of a language has the capacity to recognize words—not just the words he knows or has heard and used before, but any words and all words. In an appropriate situation, he can "learn" any word by recognizing its form and creating a meaning for it out of the context. He can make up a new word, which has never been used before, and use it and be understood by an audience totally unfamiliar with the word he is using.

He can do this, however, only if he knows the rules for word-making and word-recognizing and word-interpreting in the language he is speaking. If he knows these rules, his vocabulary is limited only by his experience. If he does not know them, it is limited strictly to the words he has memorized. Thus any procedure for teaching the words of a language can be evaluated on the basis of the actual control it gives the student over the underlying sets of rules.

The fact that there are two questions reflects the fact that there are two different sets of rules to be learned. One set of rules concerns the meaning of words and has to do with choosing words from a situation and with interpreting them after they have been recognized. The other set of rules has to do with the pronunciation of words after they have been chosen and with their recognition after they have been spoken. In this, recognition is much more important than pronunciation, so we can rephrase the question for a pronunciation teacher in this way: *What does the student have to know about pronunciation in order to be able to recognize any word that he might ever hear?* One obvious specific answer is that he has to be able to hear all of the necessary distinctive features of the language. Another obvious answer is that he must know how words are made in terms of their pronunciation structure.

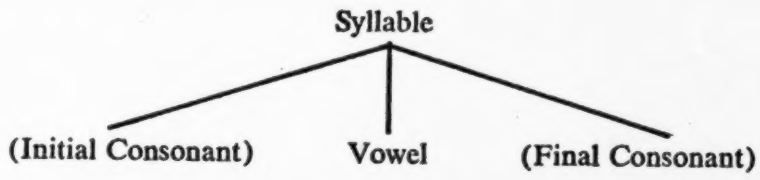
The pronunciation structure of a word consists of several parts. A word consists of one or more syllables, so the structure of the syllable is a part of pronunciation structure rules. As a lexical item, a word contains a definite stress pattern, and there are clearly patterns that are permitted and patterns that are not. So pronunciation structure must contain rules to govern stress assignment. Some words are grammatically simple (for example, *black* and *bird*), but others are grammatically complex because they have been derived from simple words by rule-governed processes of derivation (for example, *blacken, birdie, blackbird*). So pronunciation structure must contain rules which control the ways in which the materials brought together by derivational processes are combined. A great deal of new insight has been gained in these areas within the last few years, but very little of it has been explicated for the language teacher or reflected in his materials. Consider, for example, the possibilities inherent in what we know about syllable structure.

Syllable structure

Suppose we are talking over the telephone and the connection is very bad. Under such conditions, telephone engineers have found that some sounds are easier to recognize than others. We can generally tell vowels from consonants, even if we cannot tell what the vowels and consonants themselves are. If we can hear a little bit more, we can probably distinguish low vowels from mid and high vowels, probably distinguish sibilants (/s, š, z, ž, č, ǰ/) and sonorants (/m, n, ŋ, l, r, y, w/) from the other consonants. If reception gets a little better, we can begin to distinguish more details within the sound until finally, when the reception is good, we can distinguish each sound the speaker says from every other sound he says.

What is happening here is simply that, as reception gets better, we are able to distinguish more and more features of the sound. We distinguish vowels from consonants on the basis of a sound feature: +*vocalic* vs. −*vocalic*.[3] We distinguish sibilants from other consonants on the basis of a feature: +*sibilant* vs. −*sibilant*. Some of these features are much easier to hear than others, so it seems likely that they are much more basic to language than others, and an observation of the languages of the world seems to bear this out. With one possible exception, every language needs to distinguish between vowels and consonants, but there are many languages which do not need to distinguish between stops and fricatives.

If we are to account for these facts in an abstract set of rules, one of the easiest ways to do it is to visualize the syllable as a kind of branching diagram or "tree." For an English syllable, the first division in the tree must show the very important distinction between vowels and consonants. The vowel is at the center of the syllable, and it may have a consonant or a group of consonants on either side of it. We can draw it this way:



If this distinction between vowels and consonants is all we can hear over a faulty telephone connection, then we can count the number of syllables that a person says, but we will not be able to recognize much of his message.

Consonant clusters

The consonants of English divide themselves into three large groups in terms of the way we hear them. One group

[3] Here, as elsewhere in distinctive-feature notation, + before a feature indicates the presence of that feature; — before a feature indicates its absence.

of consonants has many of the same qualities that vowels have. They are all voiced, and they are not stops or fricatives. This group, which we call sonorants, includes /m, n, ŋ, l, r, y, w/. A second group of consonants that are very easily distinguished are the *sibilants*. The stops and fricatives /p, f, b, v, t, θ, d, ð, k, g, h/ make up the third group. The ability to distinguish these three groups depends on the ability to hear two features: +*sonorant* vs. −*sonorant* and +*sibilant* vs. −*sibilant*. (The third group is −*sonorant*, −*sibilant*.) Since each of these classes of consonants has its own place within the initial and final consonant clusters of English, we can use these distinctive features to describe English sounds. English initial consonants and consonant clusters must look like this:

$$(+\text{sibilant}) \begin{pmatrix} -\text{sibilant} \\ -\text{sonorant} \end{pmatrix} (+\text{sonorant})$$

We can select any or all of these as the initial consonant or consonant cluster, but if two or more are used, they must appear in the order shown. All three are illustrated by a word like *spray*. If we leave out the sonorant, we get words like *stay*. If we leave out the sibilant, we get words like *tray*. If we leave out the middle consonant, we get words like *slay*. In *say* we have left out both the middle consonant and the sonorant. In *day* we have left out the sibilant and the sonorant. In *lay* we have left out the sibilant and the middle consonant.

The same sort of thing can be done for final consonant clusters, but the result is much more complicated because there are many more possible combinations. The longest existing final consonant clusters represent a choice of any four elements from the following list:

(sonorant)
(sonorant)
(not sonorant, not sibilant)
(not sonorant, not sibilant)
(sibilant)
(not sonorant, not sibilant)
(sibilant)

In *worlds* we have chosen four of the first five, while in *bursts* we have chosen the first and the last three.

Actually, if a speaker of English hears just this much of the character of a syllable, he knows much more about the syllable than we have so far indicated. If he hears, for example: *sibilant – not sibilant and not sonorant – sonorant – vowel,* he knows one of the sounds completely, for the sibilant must be /s/—no other sibilant can occur in that position. Similarly, he knows that the next sound must be /p/ or /t/ or /k/, for those are the only sounds that are allowed to come between an initial /s/ and an initial sonorant. He also knows that the sonorant cannot be a nasal, because nasals are not allowed in that position. And because he knows all this, he doesn't have to listen for it. He doesn't need to try, for example, to distinguish /p/ from /b/ by hearing whether or not it is voiced, because he knows that it will not be voiced. Nor does he try to distinguish /s/ from /z/ or /l/ from /n/, because he knows that /s/ is possible and /z/ is impossible, etc. He can concentrate his attention, therefore, on getting just the features that he needs in order to understand the word. He must hear whether the middle consonant is alveolar or not alveolar. If the middle sound is alveolar, he has already identified the initial cluster as /str/, for there are no other choices. If the middle sound is not alveolar, then he will test it to see if it is labial, and he will test the sonorant to see if it is alveolar.

We must take this account of hearing seriously. Modern psychologists and computer programers have shown us many good reasons to suppose that the ear actually hears by applying a series of tests like the ones I have described. The tests that are appropriate for one language, however, may not be appropriate or useful for another language because of differences in the phonological structures of the languages.

The pronunciation teacher must teach his students to apply the tests needed for recognizing efficiently the words of the language they are learning. He must do this in such a way that his students can apply the tests in the right order and make correct inferences from the results. When the student applies the tests correctly and in the proper sequence, he will hear efficiently. But if he does not apply all the tests, or if he applies them in the wrong order—so that he has to do more actual testing than the native speaker would do—his hearing efficiency drops. It has been repeatedly demonstrated that native speakers of a language can hear better under conditions of noise than second-language speakers generally can. The reason for this should now be clear: The second-language speaker is not making as many inferences as the native speaker is, and he must hear more of the actual sound to make up for it.

Implications for teaching

Several practical consequences for the language teacher proceed from these facts. First, syllable structure and the ability to recognize and produce consonant clusters is probably much more important in word recognition than anyone has suspected it to be. Position within the syllable can make a great deal of difference in how much of a sound must actually be heard before the sound can be identified, and there is no doubt that hearers make use of this fact to improve their efficiency. There is no doubt, therefore, that we can improve our teaching of pronunciation by a little more concentration on syllable structure.

The second point is an old one, but it takes on a new urgency in this context. The student recognizes a word by matching it up with what he hears, so the testing that goes on in the ear must also help the student search through his vocabulary for the right word. If we have taught him the sound system at the very beginning of his language learning, he will classify the words in his vocabulary according to the appropriate pattern of tests which have to be made. But if we teach him a lot of words and then start

to teach about pronunciation later, he is going to have all those words misclassified in his vocabulary. The pattern of tests that we are trying to get him to apply in using the new set of pronunciation rules will apply well enough to new vocabulary, but the new tests will not lead him to usable identifications in the old vocabulary because it is classified according to a different system. Hence he cannot "unlearn" the old habits because he still needs them to recognize the old words, and he cannot use the new tests consistently because they do not always lead to word identification. He *must* use both and be less efficient.

Imagine trying to use a dictionary where some but not all of the *p*'s and *f*'s are alphabetized together in one list, and some but not all of the *b*'s and *v*'s are alphabetized together in another list, etc. If the ordinary dictionary of English were as thoroughly misalphabetized as its counterpart in the heads of many Filipino students is misphonemicized, it would take days to look up a word in the mess, for it could occur in dozens or even hundreds of different places. A student may well suffer such a confusion if his teacher has the mistaken impression that the most important thing is to rush the child into self-expression and give him a lot of half-known words. We must, unquestionably, teach the sound system of the language first and enlarge the student's vocabulary second.

In an interesting experiment, a group of native speakers of English was trained to take down stenographically radio messages in a foreign language. One half of this group was given intensive training in the foreign language for six months. The other half spent three months learning to take down what were for them meaningless foreign sounds until they could do it accurately—they were not allowed to begin studying the language until they *could* take down the sounds accurately. Then they began to study what the sounds might mean. Very quickly they passed the group that had been studying the language from the beginning in their comprehension of what they were writing down.

We need much more experimentation in this area—and particularly experimentation with young children—but we might find that we could master the sounds and vocabulary of a language more effectively if we only had to struggle with one set of abstract rules at a time. That is, if we could somehow separate pronunciation study from the study of meaning until we had really mastered the pronunciation mechanism, our study of meaning might go much faster, and our study of pronunciation might go much faster, too. But the partial separation afforded by independently conceived pronunciation drills would not be enough. The separation would have to be complete.

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Most of Tommy Anderson's brief career was spent at the Philippine Normal College in Manila, in the service of his "second homeland." As a visiting American Fulbright researcher and lecturer in the early 1960s, Professor Anderson assisted in developing an M.A. program in TESL at the Philippine Normal College. Later, as a staff specialist of the Philippine Center for Language Study and as assistant professor in residence and consultant to the Language Study Center at the college, he continued to teach, edit materials, and direct research. In January 1969, just a few months before his untimely death at the age of 37, Professor Anderson joined the staff of the Department of English at the University of California, Los Angeles, where his contrastive analysis of Cebuano and English, presented as a doctoral dissertation, had earlier earned him the degree of Doctor of Philosophy. In addition to the many articles that he contributed to Philippine and other language-teaching journals, Professor Anderson was co-author of *Freshman English: A Text for Filipinos.*